

Application No.: 10/730,525

Reply to Office Action mailed September 15, 2005

AMENDMENTS TO THE CLAIMS

A list of claims follows, including those to be amended:

1. (Currently Amended) A process of polymerizing olefins comprising contacting, in a reactor:
 - (a) ethylene and at least one comonomer selected from the group consisting of C₄ to C₈ alpha olefins; and
 - (b) a supported catalyst system comprising a metallocene catalyst compound activated by methylaluminoxane, and a support material, the methylaluminoxane being present in the range of from 3 to 7.7 mmole methylaluminoxane per gram of support material, the metallocene being present in the range of from 0.04 to 0.1 mmole metallocene per gram of support material;wherein the process produces a polyethylenic ~~polymer~~ copolymer having a bulk density of at least 0.30 gram/cubic centimeter; and wherein the support material is ~~selected from the group consisting of silica~~ having an average particle size ranging from 10 to 40 μ m, alumina, silica-alumina, magnesium chloride, graphite, and mixtures thereof, and wherein the metallocene catalyst compound is a substituted bis-cyclopentadienyl zirconocene catalyst compound comprising at least one fluoride or fluorine containing leaving group.
2. (Original) The process of claim 1 wherein the polymerization process is a gas phase process.
3. (Original) The process of claim 1 wherein the polymerization process is a slurry process.

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4. (Cancelled)

5. (Cancelled)

~~6. (Cancel) The process of claim 1 wherein the reactor demonstrates a Fouling Index in the range of less than or equal to 2.~~

7. (Original) The process of claim 6 wherein the methylaluminoxane is present in an amount in the range of from 4 to 7.7 mmole methylaluminoxane per gram of support material.

8. (Original) The process of claim 7 wherein the methylaluminoxane is present in an amount in the range of from 5 to 6.5 mmole methylaluminoxane per gram of support material.

9. (Original) The process of claim 8 wherein the methylaluminoxane is present in an amount in the range of from 6 to 6.5 mmole methylaluminoxane per gram of support material.

10. (Cancelled)

~~11. (Original) The process of claim 10 wherein the metallocene catalyst compound is present in an amount in the range of from 0.05 to 0.08 mmole metallocene per gram of support material.~~

12. (Original) The process of claim 11 wherein the metallocene catalyst compound is present in an amount in the range of from 0.06 to 0.07 mmole metallocene per gram of support material.

~~13. (Original) The process of claim 1 wherein the catalyst has an activity of at least 5,000 grams polyethylene per gram of catalyst compound per hour.~~

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14. (Cancelled)

~~15. (Original) The process of claim 6 wherein the Fouling Index is less than or equal to 1.~~

~~16. (Original) The process of claim 15 wherein the Fouling Index is 0.~~

17. (Original) The process of claim 1 wherein the polymer produced has a bulk density of at least 0.4 grams per cubic centimeter.

18. (Original) The process of claim 17 wherein the polymer produced has a bulk density of at least 0.48 grams per cubic centimeter.

19. (Original) The process of claim 1 wherein the metallocene catalyst compound is selected from the group consisting of: bis(1,3-methyl-n-butylcyclopentadienyl) zirconium difluoride; bis(n-propylcyclopentadienyl) zirconium difluoride; (tetramethyl cyclopentadienyl) (n-propyl cyclopentadienyl) zirconium difluoride; and (pentamethyl cyclopentadienyl) (n-propyl cyclopentadienyl) zirconium difluoride.

20. (Original) The process of claim 1 wherein an antistatic agent is absent or substantially absent from the catalyst composition.

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21. (Original) The process of claim 20 wherein the support material has a surface area in the range of from 150 to 450 m²/gram.
22. (Original) The process of claim 20 wherein the support material has a pore volume in the range of from 1 to 2.5 cm³/gram.
- ~~23. (Original) The process of claim 20 wherein the support material has an average particle size in the range of from 10 to 50 μ m.~~
24. (Original) The process of claim 1 wherein an antistatic agent is present in the catalyst composition in an amount less than 4 % by weight of the catalyst composition.
25. (Original) The process of claim 24 wherein the antistatic agent is present in the catalyst composition in an amount in the range of from 0 % to 2 % by weight of the catalyst composition.
26. (Original) The process of claim 1 wherein the support material has a surface area in the range of from 150 to 450 m²/gram.
27. (Original) The process of claim 26 wherein the support material has a surface area in the range of from 250 to 400 m²/gram.
28. (Original) The process of claim 27 wherein the support material has a surface area in the range of from 300 to 350 m²/gram.
29. (Original) The process of claim 1 wherein the support material has a pore volume in the range of from 1 to 2.5 cm³/gram.
30. (Original) The process of claim 29 wherein the support material has a pore volume in the range of from 1.25 to 2.0 cm³/gram.

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31. (Original) The process of claim 30 wherein the support material has a pore volume in the range of from 1.5 to 1.75 cm³/gram.

~~32. (Original) The process of claim 1 wherein the support material has an average particle size in the range of from 10 to 50 μm.~~

~~33. (Original) The process of claim 32 wherein the support material has an average particle size in the range of from 15 to 40 μm.~~

34. (Original) The process of claim 33 wherein the support material has an average particle size of from 20 to 30 μm.

35.-74. (Cancelled)